Managing the Obese Patient in the Primary Care Office: a Toolbox Approach

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Disclosure

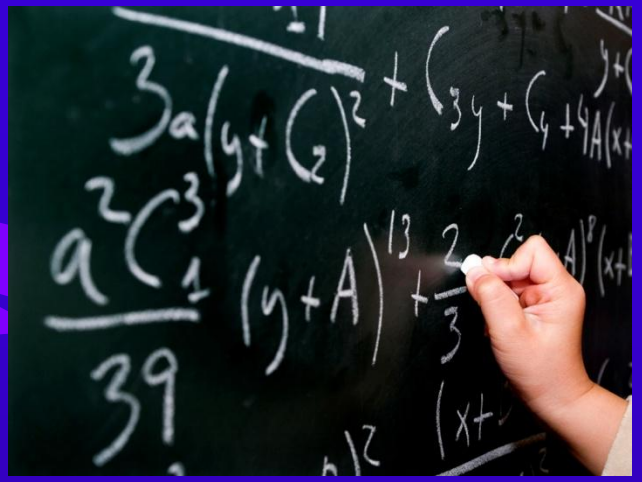
- Dr. Ryan has served as a paid advisor to many industrial entities that make medications or provide commercial treatments or products for weight loss. She has not accepted remuneration for these activities since January 2008.
  - Abbott
  - Ajinomoto
  - Amylin
  - Arena
  - GSK
  - Merck
  - Novo Nordisk
  - Orexigen
  - NutriSystem
  - Sanofi Aventis
  - Shionogi
  - Takeda
  - Vivus
  - Weight Watchers

Objectives

At the conclusion of this presentation, primary care practitioner attendees will be able to

1. describe the evidence for efficacy of commercial weight loss programs;
2. describe the medications that are available for weight management and, for commonly prescribed medications, describe the weight loss or weight gain side effects; and
3. discuss the indications for referral for obesity surgery.

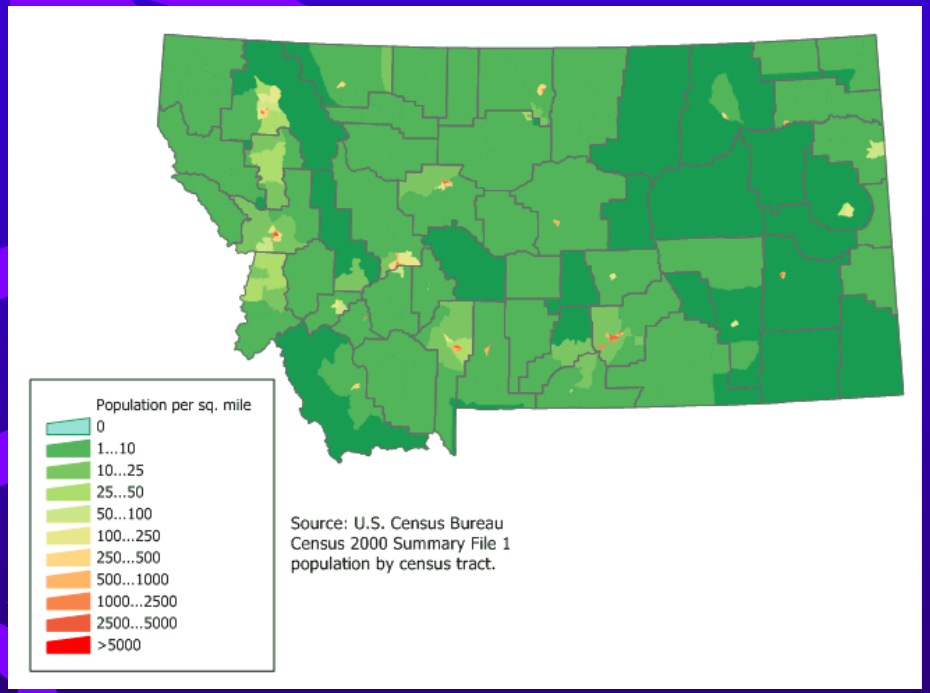
OUTLINE



- The state we're in.
- FAQs
  - Is obesity a disease?
  - What can every physician do?
  - Which tool for which job?

Montana, the State we're in

- 990,000 population
- 147,000 Sq Miles
- Demographics, 2005
  - 91% white
  - 7.5% AIAN
  - 0.6% black
  - 0.8% Asian
  - 0.1 NHPI
- Ranks 3rd nationally in craft breweries per capita



Body Mass Index Table - BMI (kg/m^2)

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Montana, the State we're in

Overweight + Obese (BMI > 25 kg/m^2)

	MT	US	LA
males	68.9%	69.3%	72.6%
females	51.5%	52.7%	58%

(MT is 9th lowest in US)

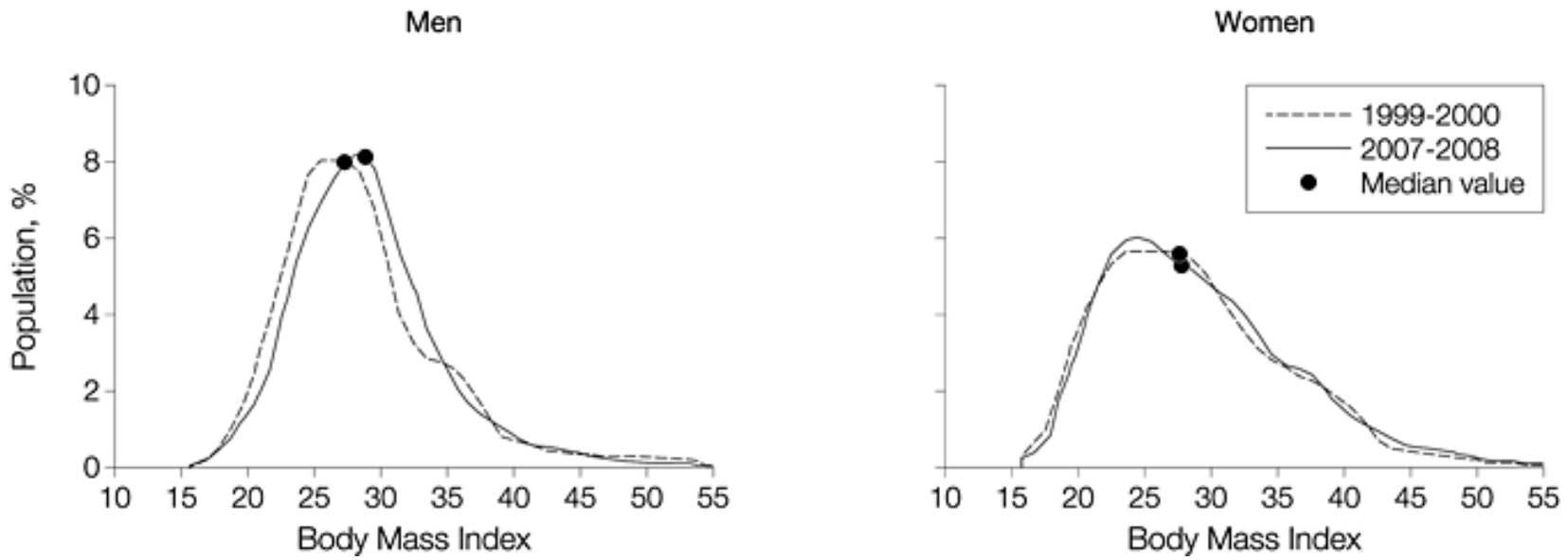
Obese (BMI > 30 kg/m^2)

	MT	US	LA
Both sexes	23%	26.7%	33%

BRFSS data, 2009

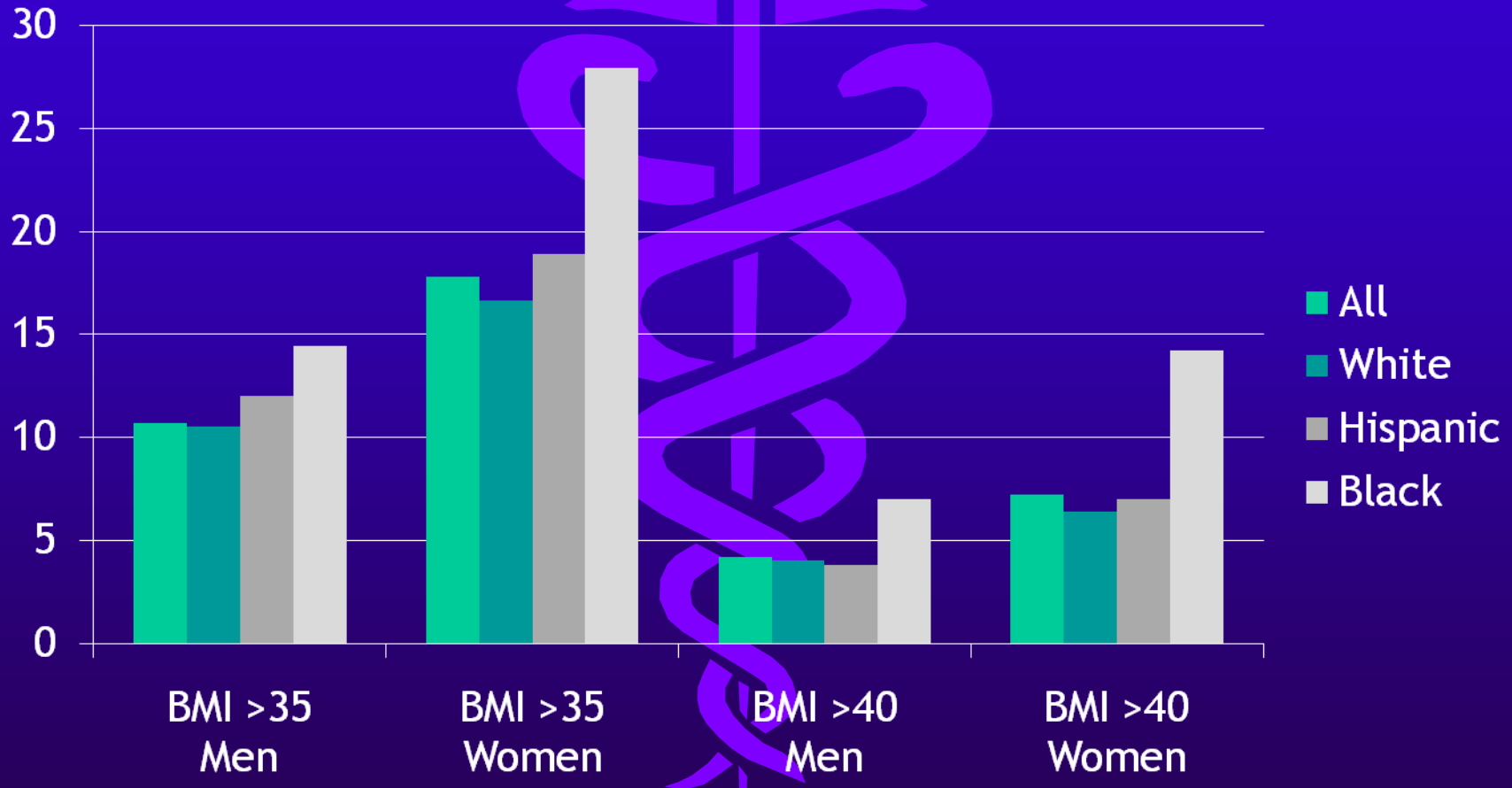
The state of US Obesity:

Smoothed Frequency Distributions of BMI Years 1999-2000 and 2007-2009 (ages 40-59)



Flegal, K. M. et al. JAMA 2010;303:235 -241.

Health Disparities: Prevalence of Obesity, 2007-2009



Adapted from Flegal, K. M. et al. JAMA 2010;303:235-241

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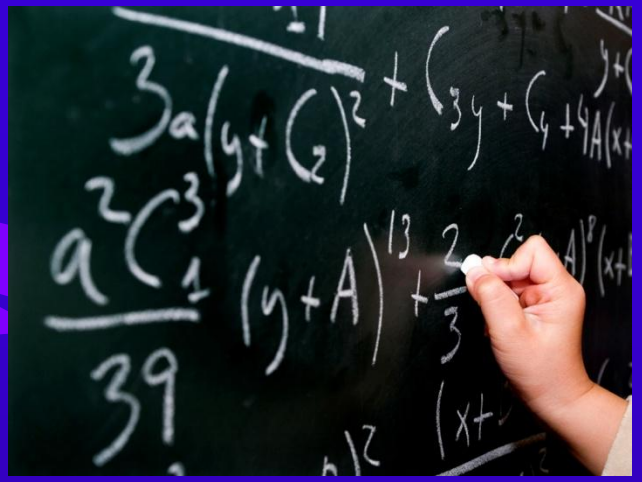

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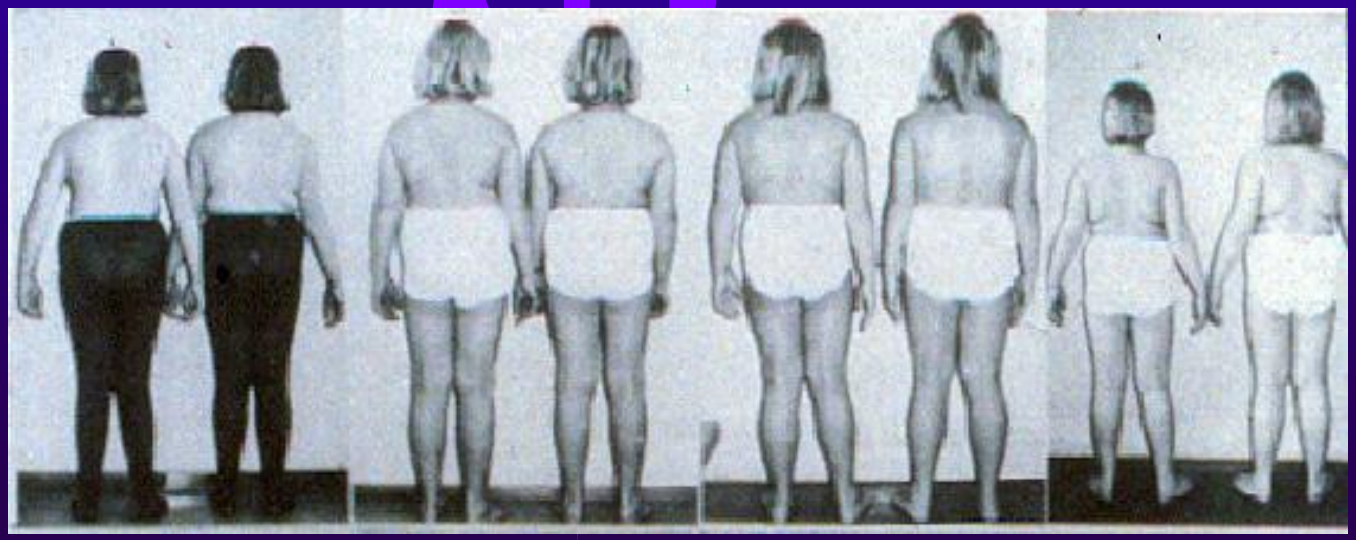
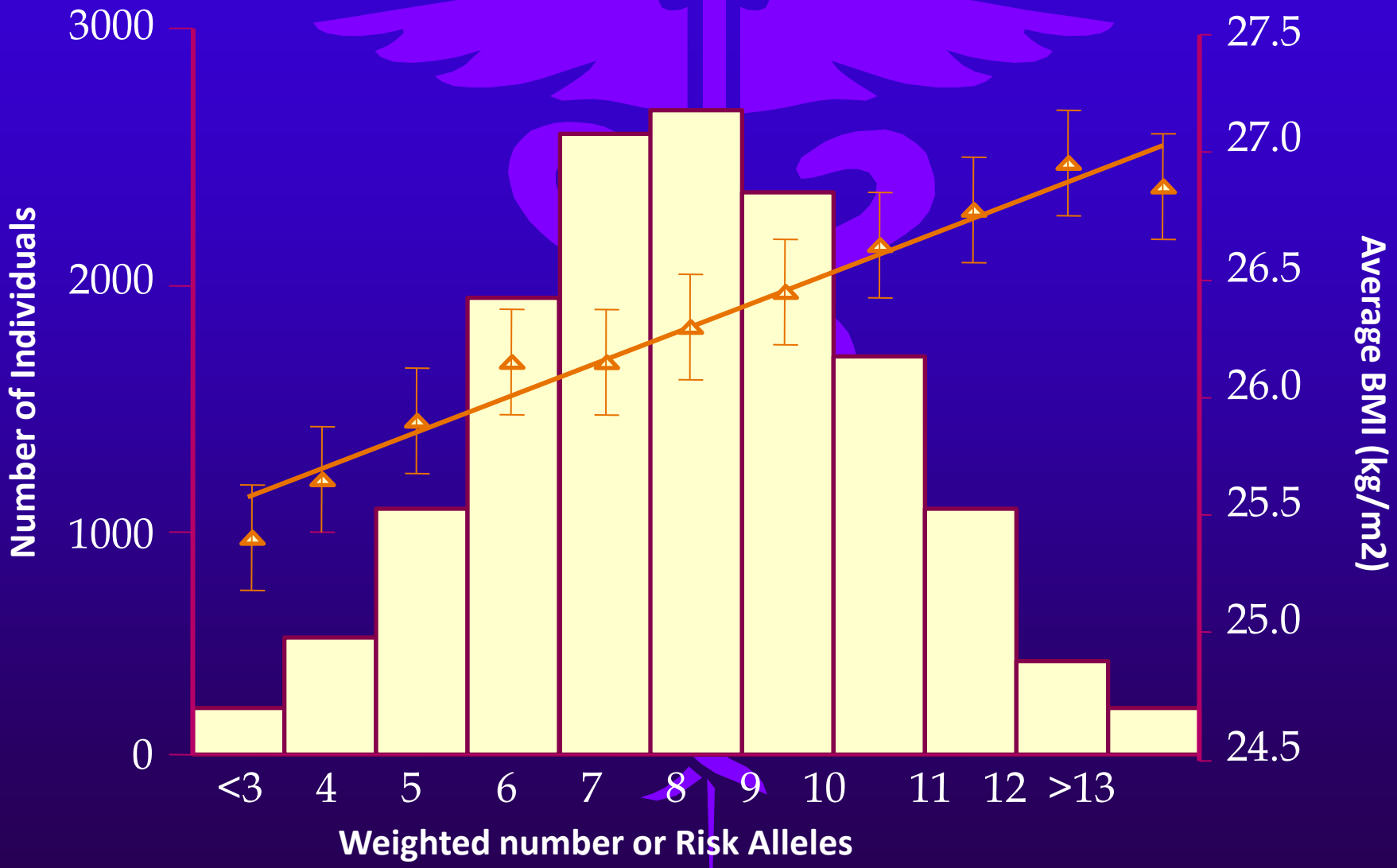
Is obesity a disease?



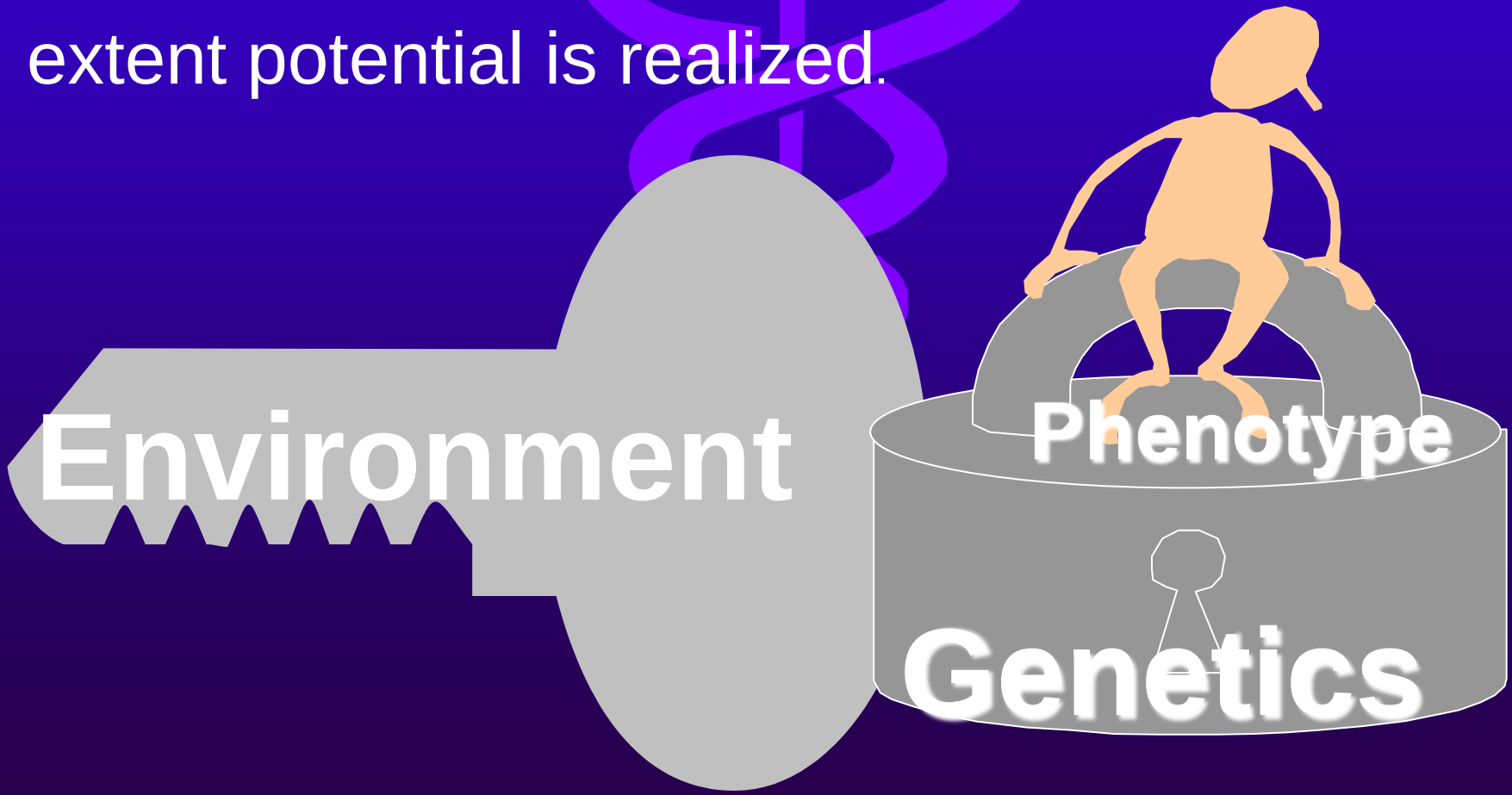
BMI Increases as Number of Alleles Increase



Genetic Investigation of anthropometric traits consortium. Six new loci associated with body mass index highlight a neuronal influence on body weight regulation. Willer CJ et al. Nat Genet. 2009;41:25-34.

Genes and Obesity

- Genes confer the potential for obesity
- Environment determines whether and to what extent potential is realized.



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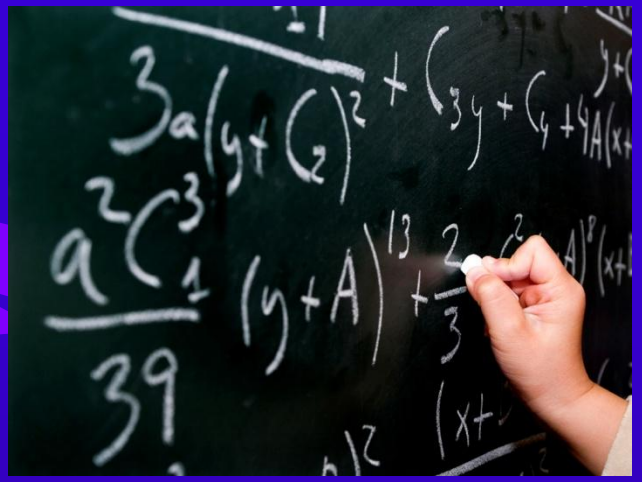

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What can every health care provider do?

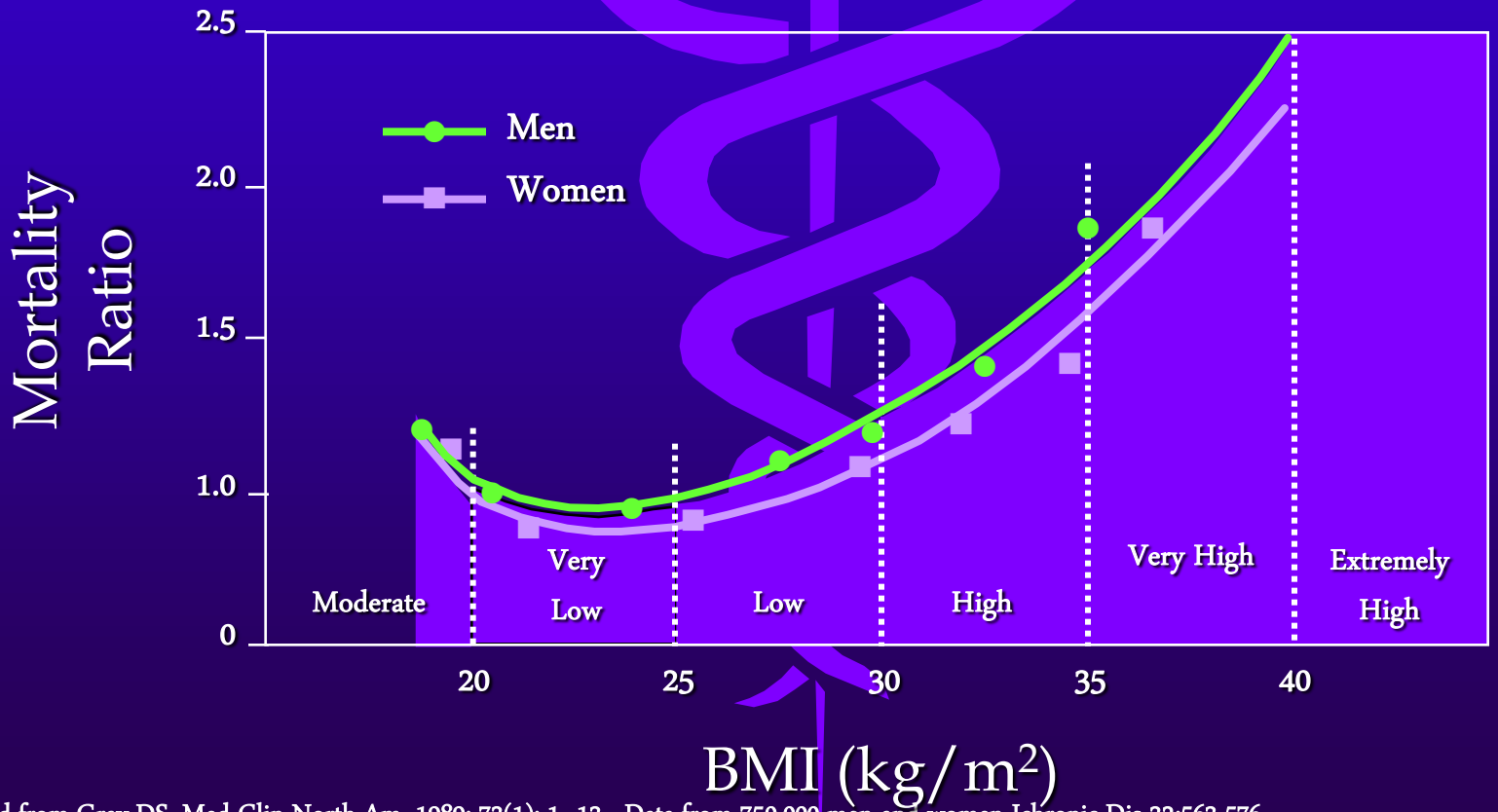
- Don’t make it worse!
  - Stigma of obese patients, physicians who treat obese patients
  - Iatrogenic weight gain:
    - Antidepressants, except bupropion and venlafaxine, which are associated with weight loss.
    - Major antipsychotics
    - Insulin, sulfonylureas, TZDs (exenatide, liraglutide, metformin associated with weight loss)
    - Beta blockers
    - Antihistamines
    - Glucocorticoids

Managing the Obese Patient in the Primary Care Office: a Toolbox Approach

- Which Tool for which job?
  - How do we identify patients at risk from excess weight?
    - Mortality, morbidity, and other risks
    - Population vs Individual risk assessment
  - How do the current Guidelines define those at risk from excess weight?
  - If being overweight is bad for you, is losing weight good for you? Evidence for weight loss benefits.
  - What can be done? (available remedies)

Obesity and mortality risk

Lessons: Being overweight is bad for you.
The more overweight you are, the greater your risk.
The point at which risk for mortality upticks is at BMI of 27.



Adapted from Gray DS. Med Clin North Am. 1989; 73(1): 1–13. Data from 750,000 men and women Jchronic Dis 32:563-576, 1979.

Body Mass Index Table - BMI (kg/m^2)

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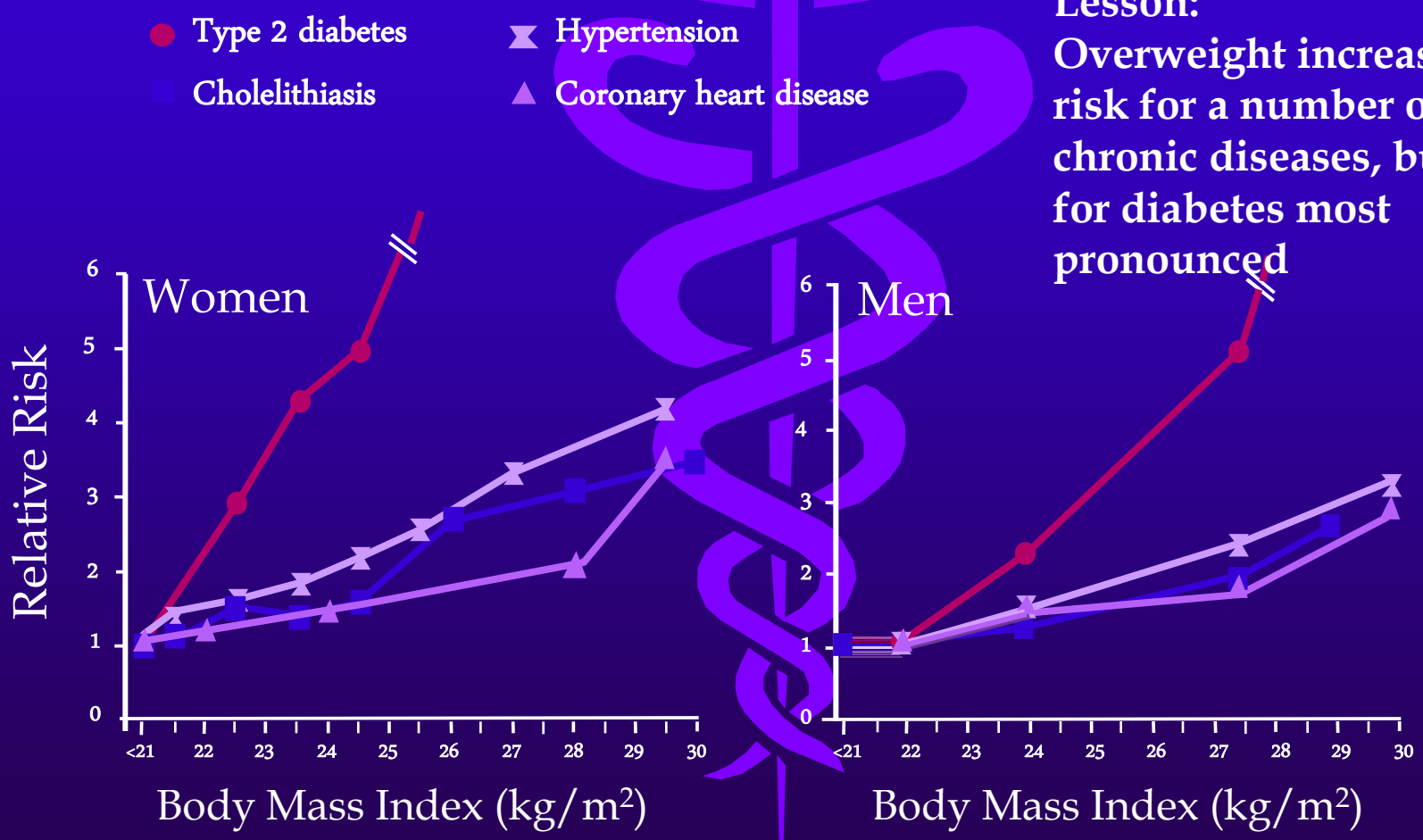
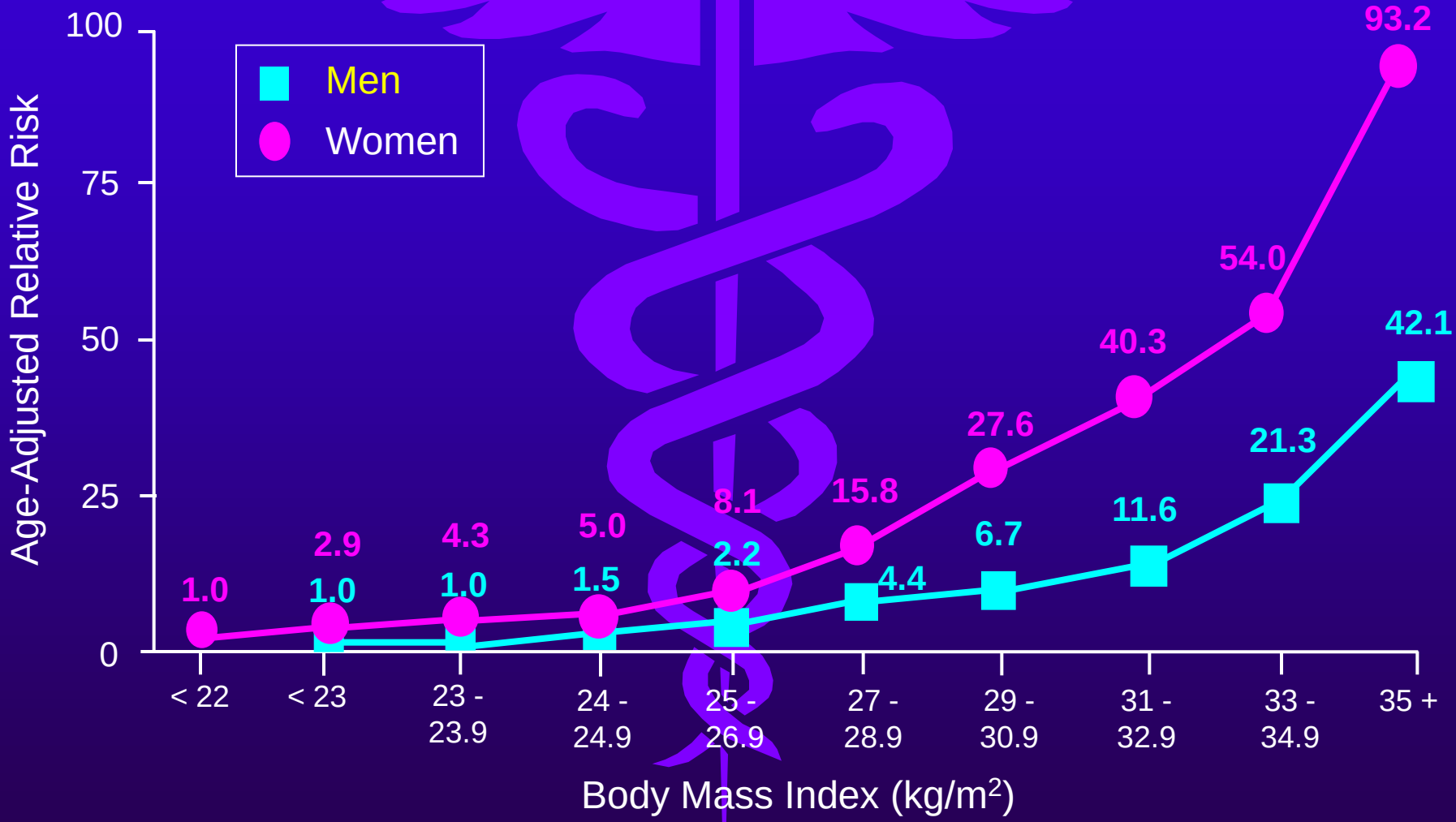
Obesity and Risk for Comorbidities



Lesson:
Overweight increases risk for a number of chronic diseases, but risk for diabetes most pronounced

Willett WC, et al. N Engl J Med. 1999; 341: 427–434.

The Twin Epidemic: Relationship Between BMI and Risk of Type 2 DM



Chan J et al. *Diabetes Care* 1994;17:961.
Colditz G et al. *Ann Intern Med* 1995;122:481.

Individualizing Risk Assessment

- “Personalized Medicine”
- There is great individual variation among the population in terms of health risk from excess weight, especially in BMI $\leq$30.
- New Guideline in 2011 may help somewhat, but clinical judgment will always be needed to personalize risk assessment.

1998 NHLBI Guidelines Define Terms

(New Guidelines are Under Development)

Body Mass Index BMI (kg/m^2) = $\frac{\text{weight (lb) x 703}}{\text{height(in)}^2}$

	BMI (kg/m^2)	Health Risk
Underweight	<18.5	
Normal Weight	18.5 – 24.9	
Overweight	25.0 - 29.9	Increased
Obese	>30	
Class	30 - 34.9	high
Class I	35 - 39.9	very high
Class III*	>40	extremely high

* Extreme Obesity

http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm

NHLBI Guidelines: Classification of Overweight and Obesity by BMI, Waist Circumference and Associated Disease Risk*

			Disease Risk* Relative to Normal Weight and Waist Circumference	
	BMI (kg/m2)	Obesity Class	Men ≤102 cm (≤ 40 in) Women ≤88 cm (≤ 35 in)	> 102 cm (> 40 in) > 88 cm (> 35 in)
Underweight	<18.5		—	—
Normal+	18.5 –24.9		—	—
Overweight	25.0 – 29.9		Increased	High
Obesity	30.0 – 34.9	I	High	Very High
	35.0 – 39.9	II	Very High	Very High
Extreme Obesity	≤40	III	Extremely High	Extremely High

* Disease risk for type 2 diabetes, hypertension, and CVD.

+ Increased waist circumference can also be a marker for increased risk even in persons of normal weight.

http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm

And from The Practical Guide…

A Guide to Selecting Treatment					
	BMI Category				
Treatment	25-26.9	27-29.9	30-34.9	35-39.9	≥40
Diet, physical activity and behavior	With comorbidities	With comorbidities	+	+	+
Pharmaco-therapy		With comorbidities	+	+	+
Surgery				With comorbidities	+

- Prevention of weight gain with lifestyle therapy is indicated in any patient with a BMI ≥ 25 kg/m2, even without comorbidities, while weight loss is not necessarily recommended for those with a BMI of 25–29.9 kg/m2 or a high waist circumference, unless they have two or more comorbidities.
- Combined therapy with a low-calorie diet (LCD), increased physical activity, and behavior therapy provide the most successful intervention for weight loss and weight maintenance.
- Consider pharmacotherapy only if a patient has not lost 1 pound per week after 6 months of combined lifestyle therapy.

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Percent of Non-institutionalized UA adults age 20 - 74 who meet these BMI categories (NHANES 2007-8)

A Guide to Selecting Treatment					
	BMI Category				
Treatment	25-26.9	27-29.9	30-34.9	35-39.9	≥40
Diet, physical activity and behavior		68.0% →			
Pharmaco-therapy				33.8% →	
Surgery					5.7% →

http://www.cdc.gov/nchs/data/hestat/obesity_adult_07_08/obesity_adult_07_08.htm

Weight Loss Benefits

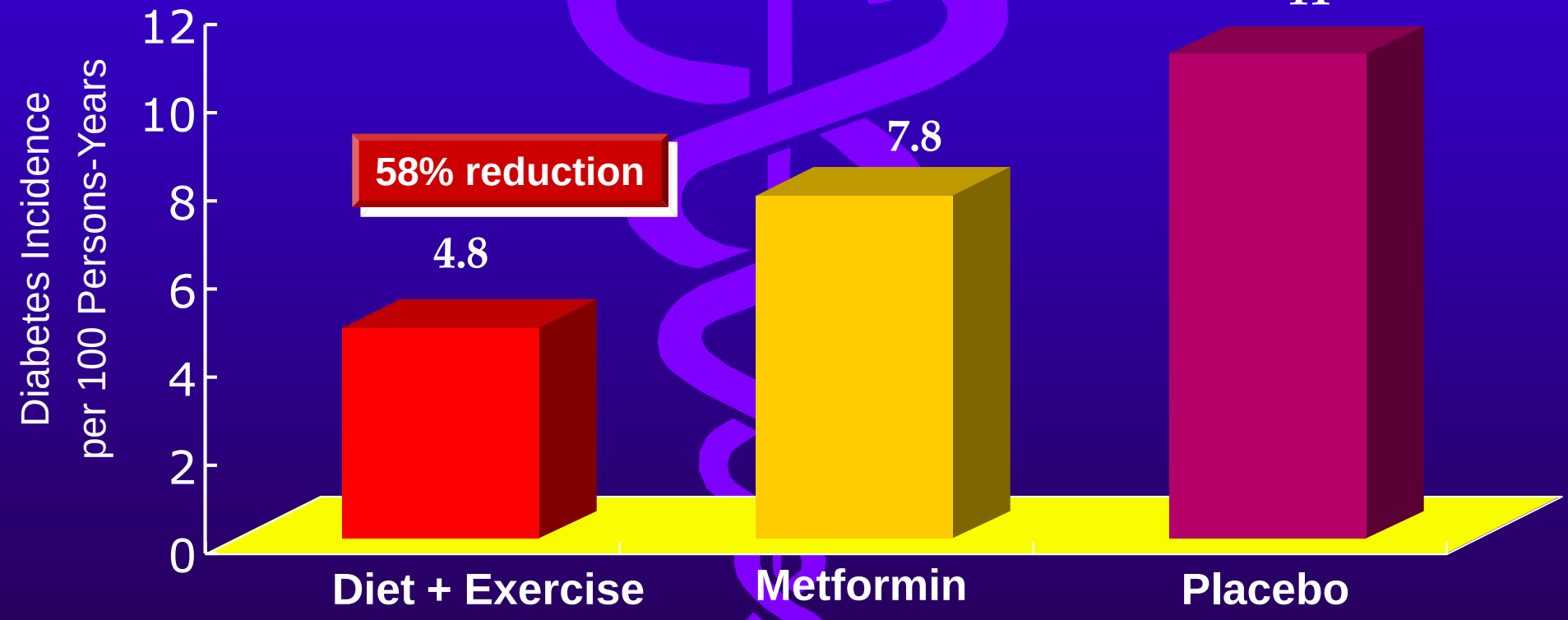
- For acute weight loss phase (negative energy balance):
  - Strong benefit in glycemic control
  - Reduction in LDL, HDL, TG and BP
- For reduced stable weight:
  - Strong benefit in glycemic control
  - Increase in HDL, reduction in TG and BP; ~20% weight loss is needed to see reduction in LDL
  - Improvement in CRP, Sleep Apnea, Quality of Life, other factors

Look AHEAD Changes in Risk Factors at 1 year

	ILI (8.6% loss)	DSE (0.7% loss)	P value
A1 C (%)	-0.64	-0.14	0.001
Glucose (mg%)	-21.5	-7.2	0.001
% on diabetes meds	-7.8	+2.2	0.001
Systolic BP (mm Hg)	-6.8	-2.8	0.001
Diastolic BP (mm Hg)	-3.0	-1.8	0.001
LDL (mg/dL)	-5.2	-5.7	0.49 NS
HDL (mg/dL)	+3.4	+1.4	0.001
TG (mg/dL)	-30.3	-14.6	0.001

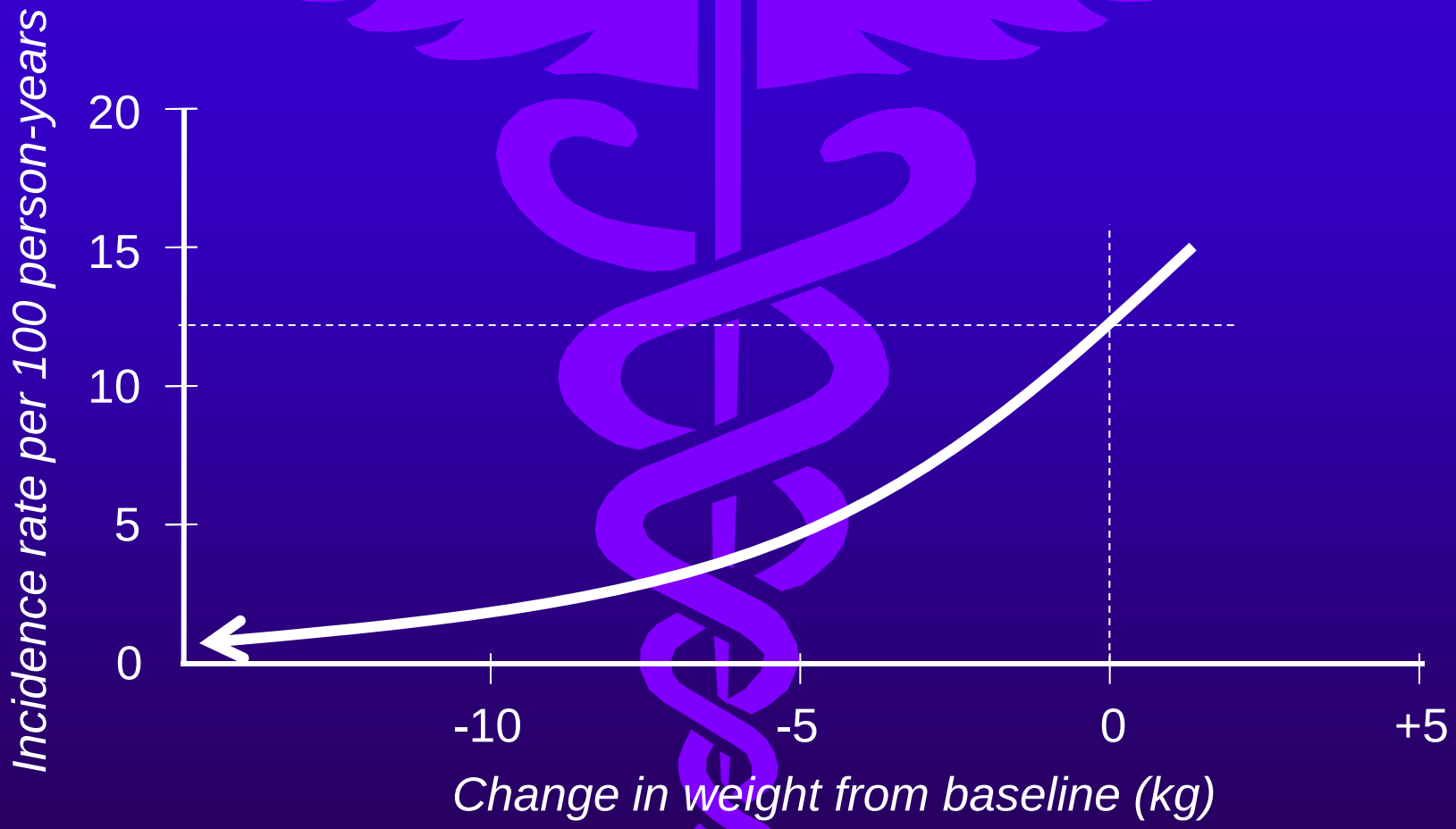
Look AHEAD Research Group. Reduction in weight and cardiovascular disease risk factors in individuals with type 2 diabetes: one-year results of the Look AHEAD trial. **Diabetes Care** 30(6):1374-1383, 2007.

DPP Results : Progression from IGT to T2DM



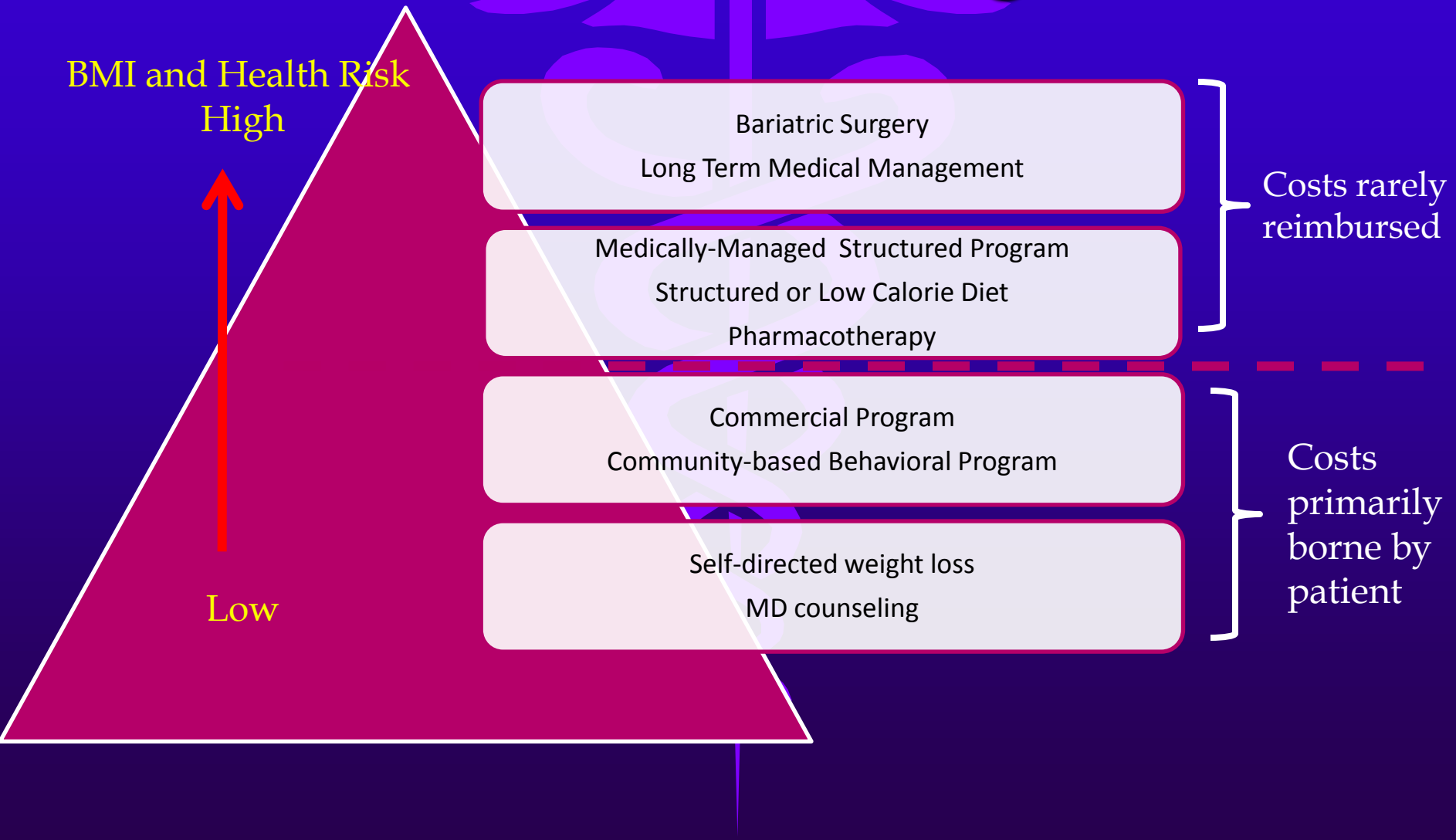
Diabetes Prevention Program Research Group. N Engl J. Med 2002: 346, 393.

How much weight loss is needed to prevent type 2 diabetes – the DPP experience



Redrawn from: Hamman, *et al Diabetes Care* 29:2102-2107, 2006

The Tradition: Stepped Care Decision Making



Lifestyle Modification

- Most of efficacy data derived from academic sites instituting standard programmatic approach to lifestyle change
- Commercial Programs – evidence base for Weight Watchers, Nutrisystem and Jenny Craig

Systematic Review: An Evaluation of Major Commercial Weight Loss Programs in the United States Adam Gilden Tsai and Thomas A. Wadden. *Ann Intern Med January 4, 2005 142:56-66.*

Foster, G D, et al. Effects of a commercially available weight loss program among obese patients with type 2 diabetes. *Postgraduate Medicine . July 2009.*

- Rarely reimbursed

Look AHEAD Lifestyle Intervention

Phase I, Weight Loss Induction

- Months 1-6 : Weekly contact
  - 3 group sessions/month
  - 1 individual session/month
- Personal weight loss goal = 10%
- Study weight loss goal $\geq$ 7%

Phase II, Weight Loss Maintenance

- Months 7-12: Reduced contact
  - 2 group sessions/month
  - 1 individual session/month
  - 2 face-to-face contacts/month required; 3 recommended
- Individual weight loss goal
  - continue weight loss if < 10%
  - weight maintenance if $\geq$ 10%

Weight Loss Maintenance -Years 2 - 4

- Each month: Face-to-face individual counseling session, Phone call or e-mail contact
- Periodic refresher courses or campaigns, 2 – 3 times per year, each lasts 6 – 8 weeks

Look AHEAD Lifestyle Recommendations

- Dietary Intake
  - 1200-1500 kcal/day < 250 lb
  - 1500-1800 kcal/day ≥ 250 lb
  - ≤ 30% calories from fat
  - Meal replacements
  - Menu plans provided
- Physical Activity
  - Gradual increases
  - 175 min/wk
  - 10,000 steps

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- Rarely reimbursed
  - Medically based treatment
  - Some activity on reimbursement for community-based interventions

YMCA DIABETES PREVENTION PROGRAM

Could you be at risk for diabetes and not know it? Increase your awareness:

- Take the American Diabetes Association test on the back of this flyer
- If you score 10 or higher, contact your local YMCA to register for the DPP
- Meeting times and place vary

The *YMCA* now offers you a *16-week program* to decrease your risk of diabetes through promoting healthy weight management, increasing activity and improving nutrition in a friendly group environment. The program includes:

- *YMCA Family Membership*
- Ongoing supportive YMCA Lifestyle Coach in a group setting
- Child care during classes and free family programs
- Educational materials and local resources
- Recipes, tracking logs, nutrition education

JOIN THE YMCA DPP TODAY!

Program Cost: $90 YMCA Members, $150 Non-YMCA Members

The *YMCA DPP* is based on the Diabetes Prevention Program, a national study that showed lifestyle changes (diet and exercise) can prevent the development of diabetes.

For more information contact Katie Koblenz, Senior Director of Total Health

253-833-2770 or kkoblenz@seattleymca.org

Washington State Department of Health

MultiCare Clinics BetterConnected

CDC

Roche

REACH

Franciscan Health System
Advanced Medicine, Trusted Care

AUBURN VALLEY YMCA
HEALTH AND WELLNESS

YMCA OF GREATER SEATTLE

YMCA partnerships –
- community organizations
- United Health Care

- So far, nothing in Louisiana

- Programs exist in Montana

Office-based Medical Managed Weight Loss

- Low calorie diets (HMR, Optifast, others)
- Structured diets (meal replacements)
- Office-based counseling programs
- Pharmacotherapy

Obesity Pharmacotherapy

- Always an adjunct to lifestyle modification – NOT a substitute
- Can add to weight loss and increase chances of meaningful weight loss
- Only two agents are currently approved by the FDA; they are rarely reimbursed by third party payors
- Three agents under consideration by FDA in 2010

What is available now?

PHENTERMINE
DIETHYLPROPION

SIBUTRAMINE

ORLISTAT

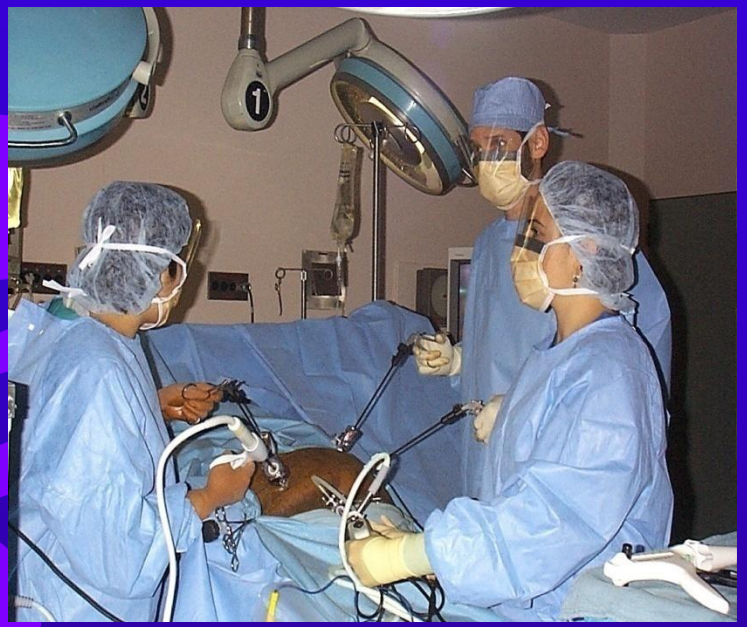
Mechanism	**Central** **Noradrenergic**	**Central** **SNRI**	**Peripheral** **Pancreatic lipase inhibitor**
Approval	**Short term use** **Class II-IV**	**Long term use** **Class IV**	**Long term use** **Not scheduled**
Cost	**$**	**$$$**	**$$$$**
Efficacy – drug only/ drug + LS	**5%/?**	**5%/15%**	**5%/8%**
Pros	**Patient satisfaction & cost**	**Demonstrated efficacy**	**Safety** **cost**
Cons	**Prescribing time limit** **? BP elevation**	**BP elevation** **reimbursement**	**Tolerability** **reimbursement**

What medications are in the pipeline?

- Lorcaserin
- Combination phentermine/topiramate
- Combination buproprion/naltrexone

- Liraglutide
- Exenatide plus leptin

Bariatric Surgery



Indications

1. BMI >40 kg/m^2 or
   BMI 35–39.9 kg/m^2 and
   life-threatening cardiopulmonary
   disease, severe diabetes, or
   lifestyle impairment
2. Failure to achieve adequate weight loss with nonsurgical treatment

Contraindications

1. History of noncompliance with medical care
2. Certain psychiatric illnesses: personality disorder, uncontrolled depression, suicidal ideation, substance abuse
3. Unlikely to survive surgery

NIH Consensus Development Panel. *Ann Intern Med* 1991;115:956.

Surgery for Obesity

Gastric Band

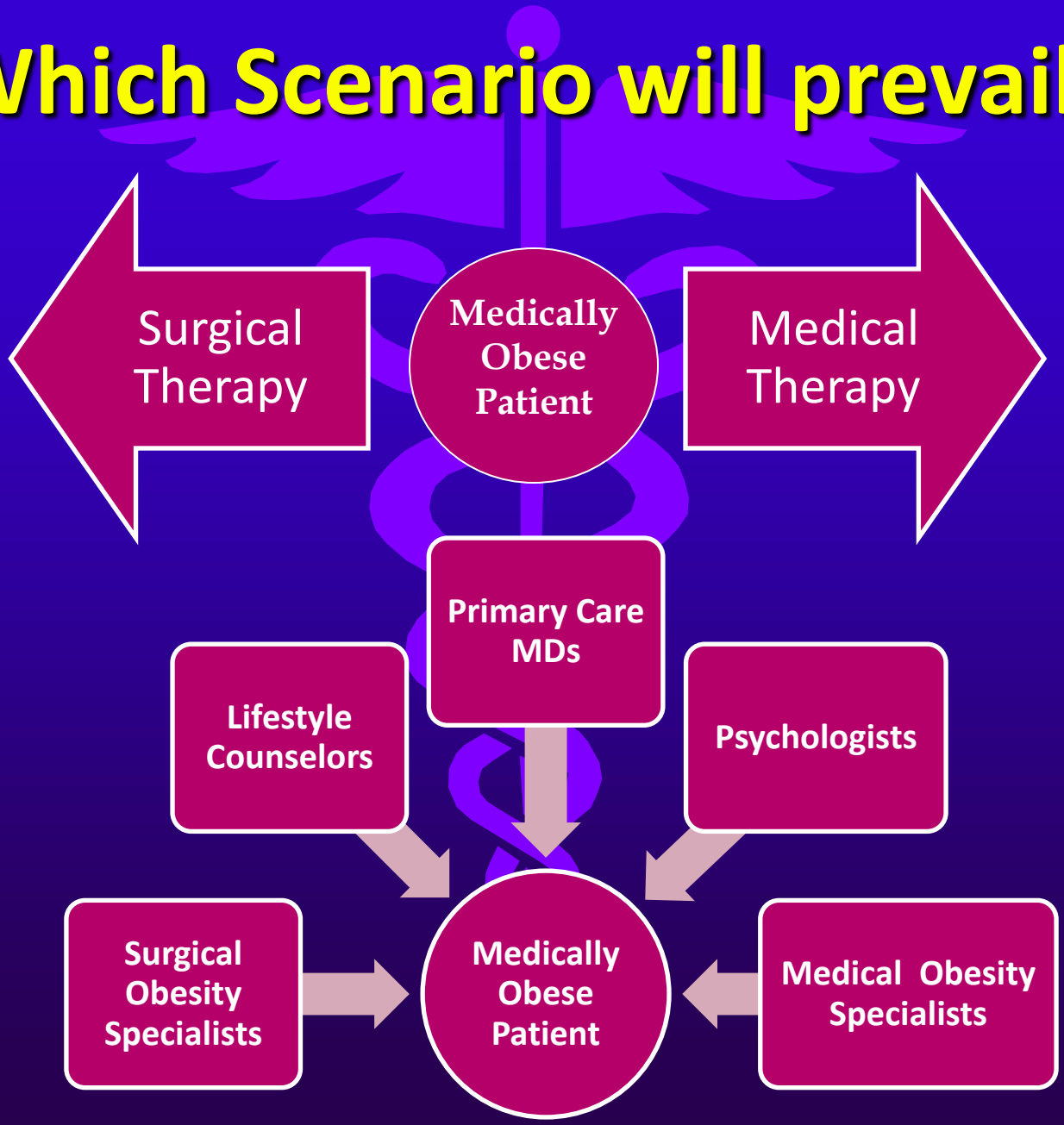
Roux en Y Gastric Bypass

Gastric Sleeve

Current Bariatric Surgical Procedures

	Gastric Band	Gastric Sleeve	Gastric Bypass
Cost	$10-15 K	$10-15 K	$20-25 K
Reversible?	Yes	No	No
Weight loss	+++	++++	+++++
Safety	+++++	++++	+++
Other issues	Requires compliance for greatest efficacy	Newest, least evidence	Requires life-long follow-up

Which Scenario will prevail?

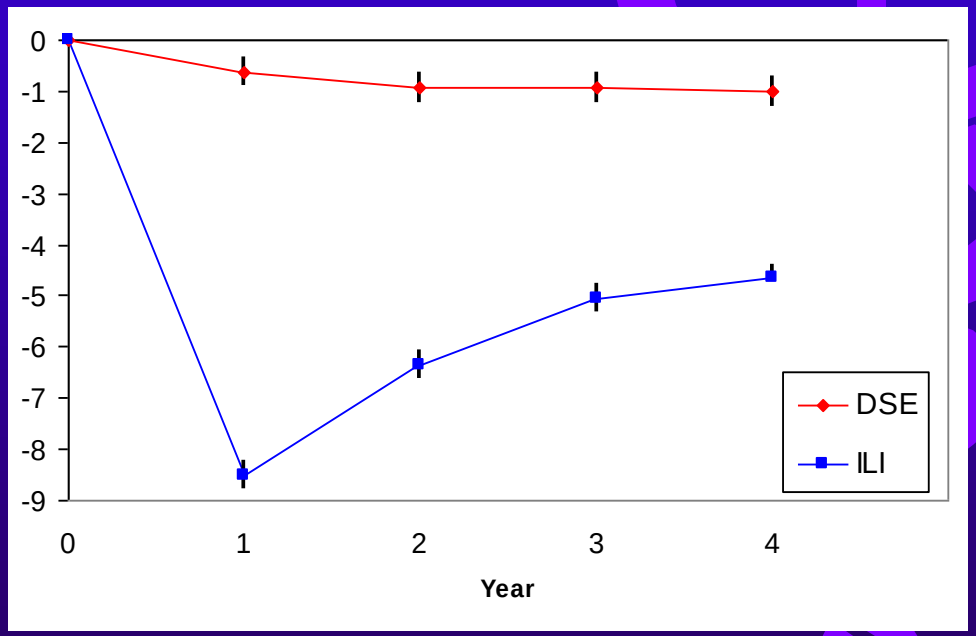


What can every physician do?

- You are the key opinion leaders in your community.
  - Examine your own attitudes.
  - Examine your own behaviors.
- Recognize that obesity is a complex biologic condition and that body size is not a choice.
- Counsel your patients:
  - It's about health, not looks.
  - Reinforce the positive health benefits of modest weight loss.
  - Don't be discouraged by weight regain; start a new campaign.

Why Does Weight Regain Occur? 4 Years of Look AHEAD

Repeated Measures Adjusted for Clinic and Baseline Level
P-value for average effect across all visits: p<0.0001



	DSE	ILI	P-value
Baseline (kg)	100.8	100.6	NS
Y1 – BL	- 0.63	- 8.50	<.0001
Y2 – BL	- 0.93	- 6.35	<.0001
Y3 – BL	- 0.92	- 5.04	<.0001
Y4 – BL	- 1.01	- 4.66	<.0001

What can every physician do?

- Don’t make it worse!
  - Stigma of obese patients, physicians who treat obese patients
  - Iatrogenic weight gain:
    - Antidepressants, except bupropion and venlafaxine, which are associated with weight loss.
    - Major antipsychotics
    - Insulin, sulfonylureas, TZDs (exenatide, liraglutide, metformin associated with weight loss)
    - Beta blockers
    - Antihistamines
    - Glucocorticoids

Why Does Weight Regain Occur?

- Metabolic adaptation:
  - Reduced obese state triggers physiologic response: decrease in leptin, increase in hunger signals, decrease in satiety signals, decrease in T3.
  - 10% weight loss associated with 20% reduction in metabolic rate.

250 # to 225 #

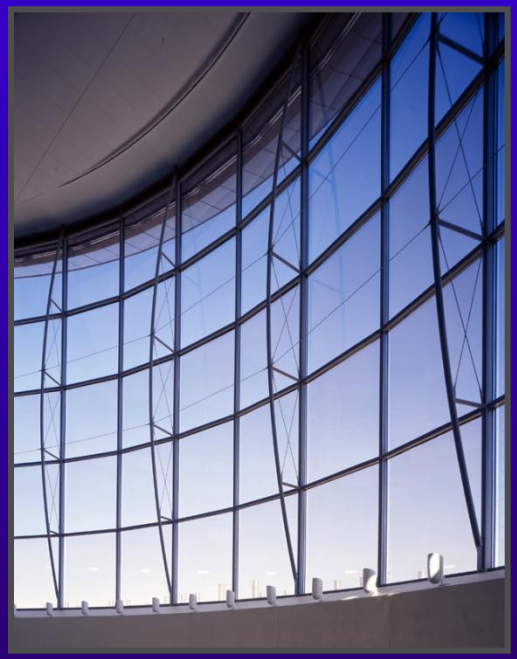
Basal requirements
2300 Kcal/day
vs
1840 Kcal/day

225 #, stable

Why is this an appropriate metaphor?

- The boy was up against a mammoth problem.
- He didn’t ignore the problem; he made his small effort.
- The ultimate solution required community efforts.

Thank you



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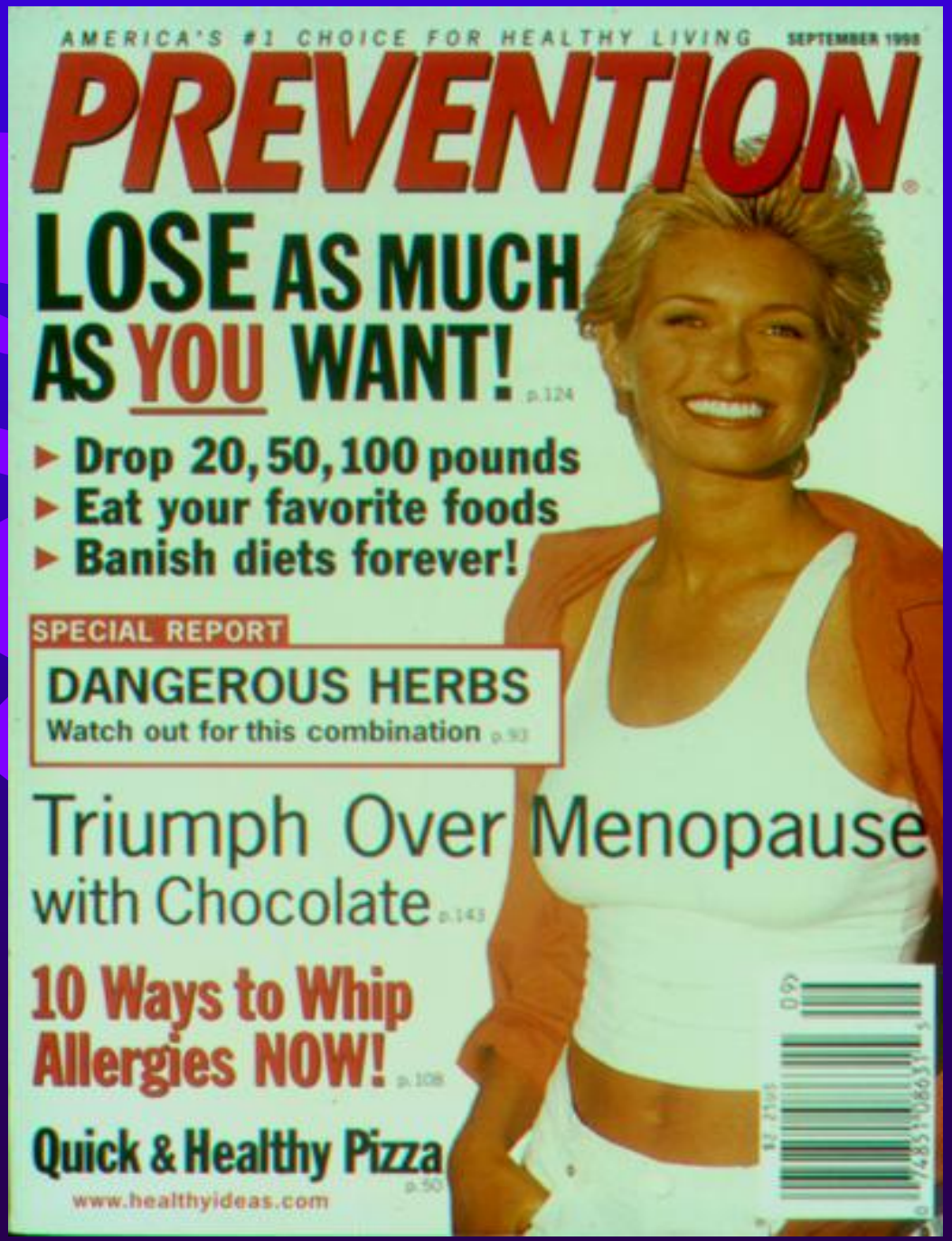
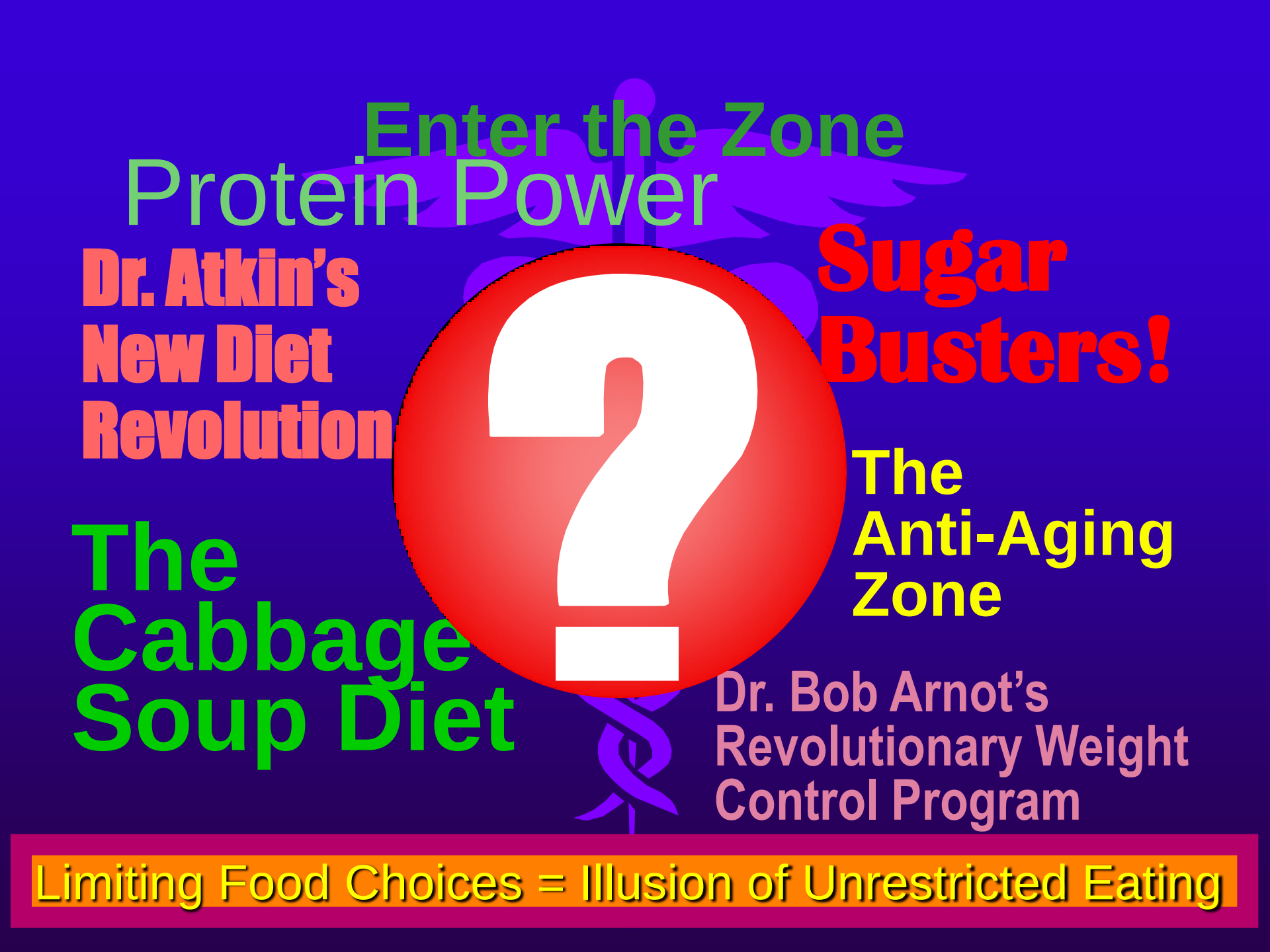
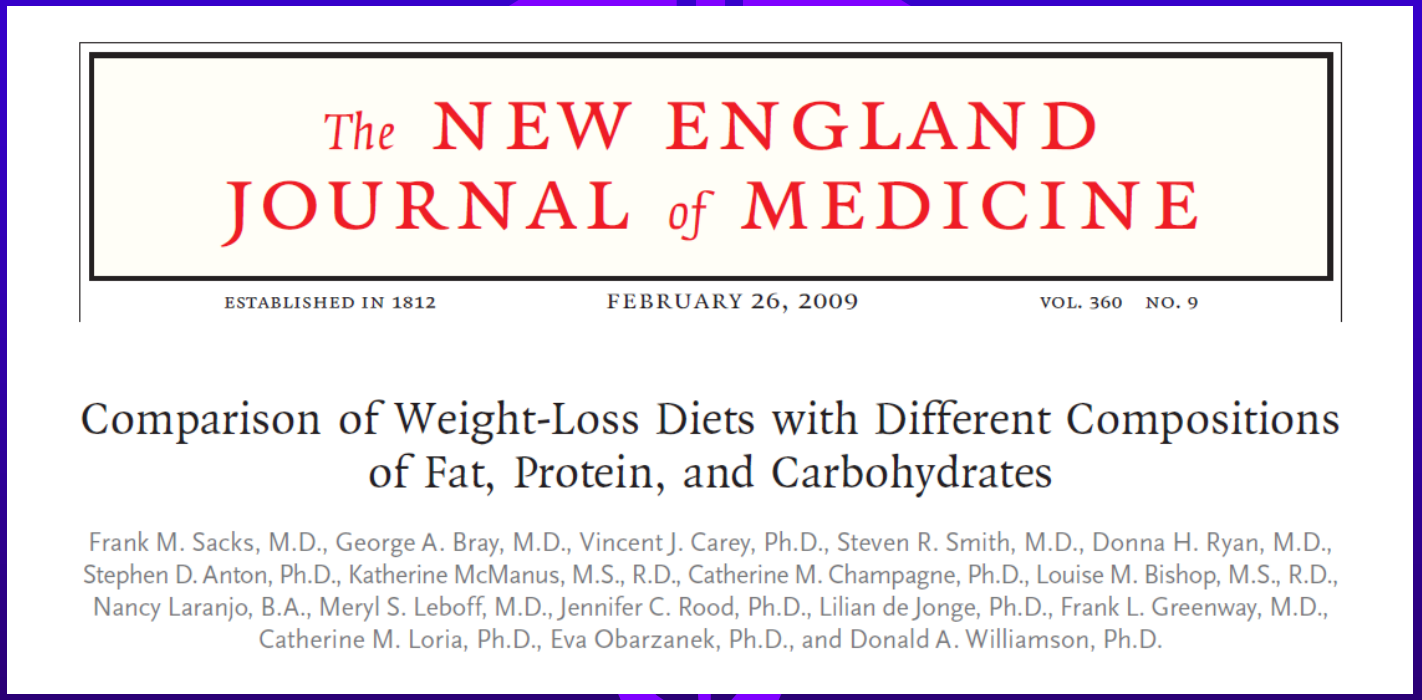
What is the BEST diet for weight loss


AMERICA'S #1 CHOICE FOR HEALTHY LIVING
SEPTEMBER 1998
PREVENTION
LOSE AS MUCH AS YOU WANT!
p.124
Drop 20, 50, 100 pounds
Eat your favorite foods
Banish diets forever!
SPECIAL REPORT
DANGEROUS HERBS
Watch out for this combination
Triumph Over Menopause with Chocolate
p.143
10 Ways to Whip Allergies NOW!
p.108
Quick & Healthy Pizza
p.50
www.healthyideas.com


Enter the Zone
Protein Power
Dr. Atkin's New Diet Revolution
Sugar Busters!
?
The Anti-Aging Zone
The Cabbage Soup Diet
Dr. Bob Arnot's Revolutionary Weight Control Program
Limiting Food Choices = Illusion of Unrestricted Eating

POUNDS LOST Publications



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Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates

Frank M. Sacks, M.D., George A. Bray, M.D., Vincent J. Carey, Ph.D., Steven R. Smith, M.D., Donna H. Ryan, M.D., Stephen D. Anton, Ph.D., Katherine McManus, M.S., R.D., Catherine M. Champagne, Ph.D., Louise M. Bishop, M.S., R.D., Nancy Laranjo, B.A., Meryl S. Leboff, M.D., Jennifer C. Rood, Ph.D., Lilian de Jonge, Ph.D., Frank L. Greenway, M.D., Catherine M. Loria, Ph.D., Eva Obarzanek, Ph.D., and Donald A. Williamson, Ph.D.

•Williamson, et al. Adherence is a multi-dimensional construct in the POUNDS LOST trial. J. Behav Med 2010. 33:35-46.

•Williamson , et al. Early Behavioral Adherence predicts short and long-term weight loss in the POUNDS LOST study. J. Behavioral Medicine 2010.

POUNDS LOST: Trial Design

Fat Content	Protein Content: High	Protein Content: Moderate
High	**Purple** 25% P 40% F	**White** 15% P 40%
Low	**Crimson** 25% P 20% F	**Gold** 15% P 20% F

POUNDS LOST: Trial Design

Fat Content	Protein Content: High	Protein Content: Moderate
High	**Purple** 25% P 40% F 35% Carb	**White** 15% P 40% 45% Carb
Low	**Crimson** 25% P 20% F 55% Carb	**Gold** 15% P 20% F 65% Carb

POUNDS LOST Trial: Design

- 811 overweight or obese people in Boston (Harvard School of Public Health) and Baton Rouge (Pennington Biomedical Research Center, LSU System)
- Randomization among 4 diet types
- Duration of treatment 2 years
- Primary Outcome: Body weight, change from baseline to 2 years.

POUNDS LOST Dietary Program for Weight Loss

- Macronutrient goals were the paramount teaching objective.
- All diets used same foods in differing proportions.
- Investigators and staff taught participants that each diet had an equal chance of success in line with divergent results of past studies: goal was trial-wide "equipoise".
- Web-based system for participants to record diet and exercise and obtain rapid feedback on goals.
- Contact among groups avoided.

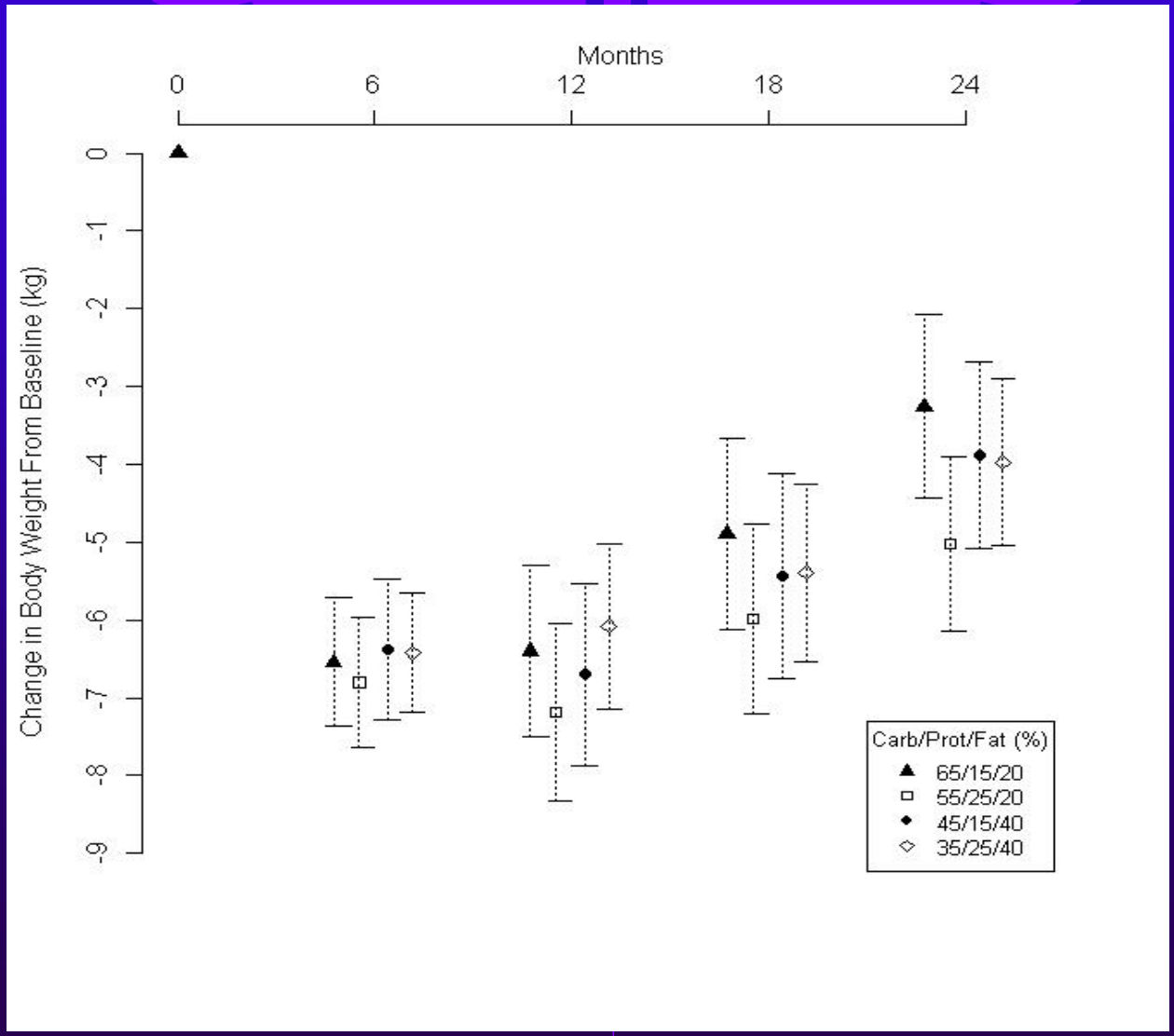
- Energy reduction goal was 750 Kcal daily
- Physical activity goal was 90 minutes per week
- Same technique and intensity for all groups

- Group sessions:
  - 3 of every 4 weeks x 6 months, then 2 of every 4 weeks
- Individual counseling sessions:
  - Every 8 weeks for 2 years

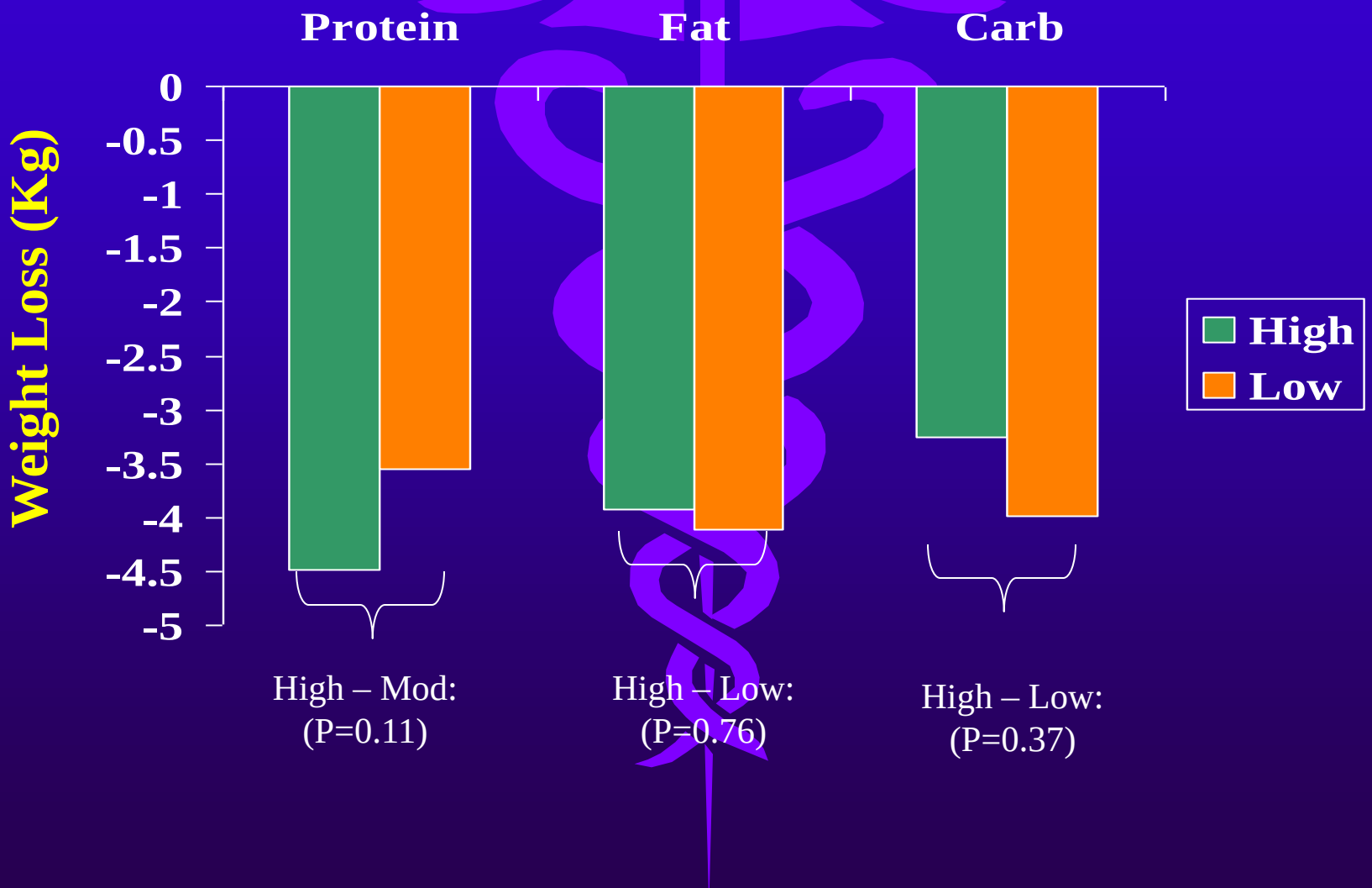
POUNDS LOST Participants

Variable	Baseline (811)	Completers (645)
Age (yr)	51±9	52±9
% Female	64%	62%
Race (% White)	79%	81%
Height (m)	1.68±8.9	1.68±8.9
Weight (kg)	92.9±15.5	92.8±15.8
BMI (kg/m2)	33±4	33±4
Waist Circum (cm)	103±13	104±13
Married (%)	70%	69%
Education ≥college	68%	69%

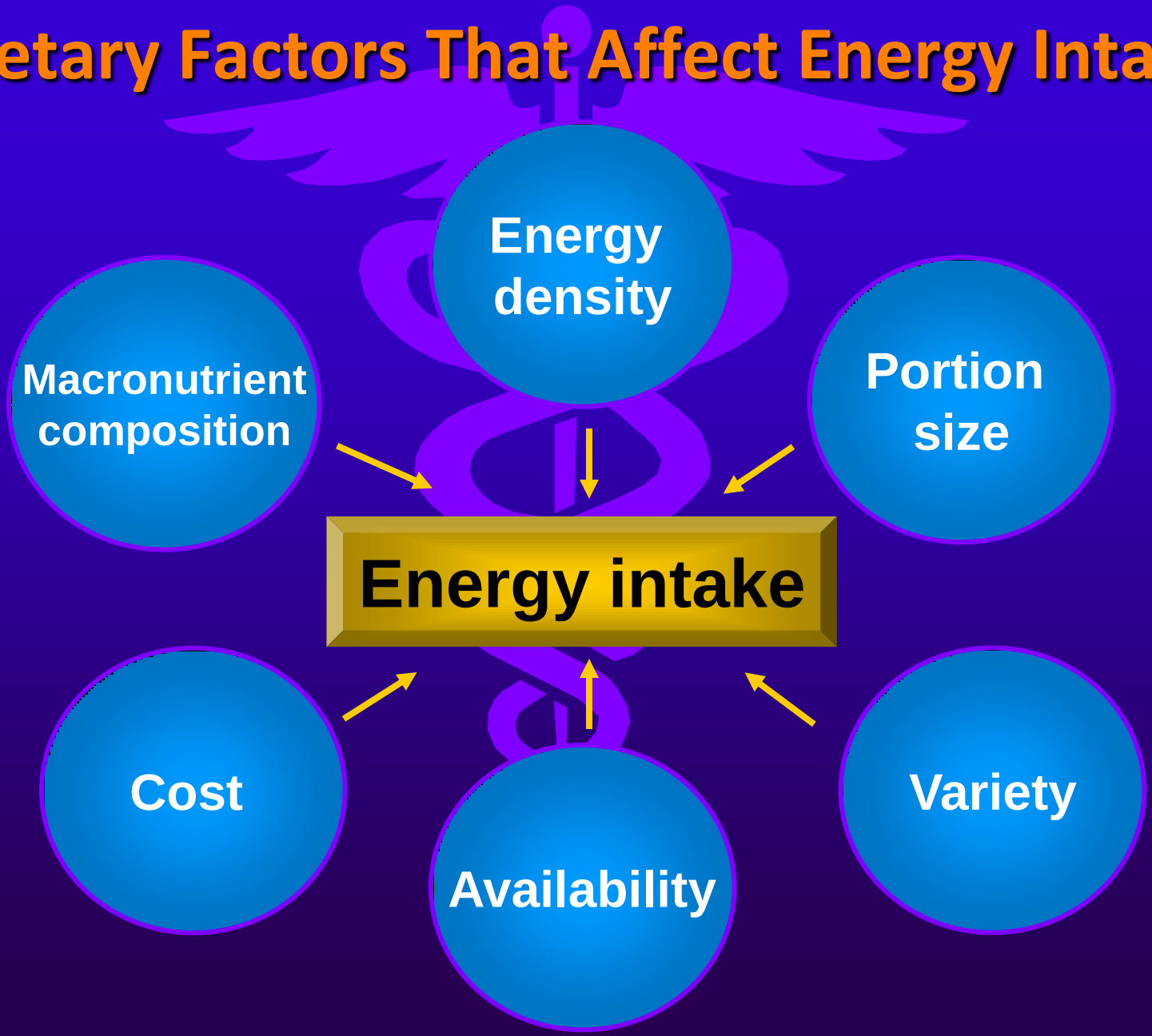
POUNDS LOST, Body Weight Change, Each Diet: Completers, N=645 at 2 years



POUNDS LOST Weight Change at 2 years: Completers, N=645



Dietary Factors That Affect Energy Intake



What we know that works:

- Self monitoring
  - Weights
  - Diaries
- Portion Control
  - Meal replacements
- Regular, moderate physical activity
- Social Support
- Incremental steps to behavior change

Conclusions

- There does not appear to be any metabolic magic around macronutrient composition.
- Many dietary approaches have been shown to succeed.
- Time and again, adherence appears to be the critical construct for weight loss success.

Successful Weight Losers and Maintainers

National Weight Control Registry 1-800-606-NWCR

- Over 4000 registrants (80% are women)
- Consume low-fat diets (24% of kcal)
- 50% reduce *quantity* of food consumed
- Expend 400 physical activity kcal/day
    - Walking most frequently cited
- 4% used weight loss medications

Average NWCR Registrant

- Keeping off 60lb wt loss for 5 yrs
- 66% were overweight children
- 60% family history of obesity
- 50% lost weight on their own

Evaluation & Management of Obesity, DH Bessesen, R Kushner, 2001
http://www.uchsc.edu/nutrition/WyattJortberg/nwcr.htm